



Image # AF
12881

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

In re Application of

Daniel A. Lawlyes

Group Art Unit: 8146

Serial No.: 09/928,884

Examiner: Michael L. Lindinger

Filed: August 14, 2001

For: PARTITIONED CIRCUIT ASSEMBLY

Attorney Docket No.: DEL 0192 PA (DP-304830)

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Karen A. Hoff
Signature

Date: 2-4-2004

KAREN A. HOFF

BRIEF ON APPEAL

Mail Stop Appeal Brief
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

The following is an Appeal Brief pursuant to the Notice of Appeal filed on
December 4, 2003, the two month date expiring Wednesday, February 4, 2004, for the

02/11/2004 AWONDAF1 00000108 500476 09928884

01 FC:1402

330.00 DA

above identified application. Please charge the filing fee to Deposit Account No. 50-0476.

I. Real Party in Interest

The real party in interest in this matter is Delphi Technologies, Troy, Michigan (hereinafter "Delphi").

II. Related Appeals and Interferences

There are no other known appeals or interferences which will directly affect or be directly affected by or have bearing on the Board's decision in the pending appeal.

III. Status of the Claims

Claims 8-17 stand rejected in the Final Office Action. A copy of the claims on appeal is attached as an Appendix.

IV. Status of Amendments Filed After Final

There have been no amendments filed subsequent to the final office action mailed August 5, 2003.

V. Summary of the Invention

The present application is for an automotive engine controller 10 comprised of a main assembly board 12 (page 3, line 1) and a main assembly housing 20 (page 3, par 16). The present invention further includes a pre-assembled partition circuit assembly 14 having a partitioned circuit element 22 *(page 3, par 16), mounted within a partitioned circuit housing 24, and a plurality of connectors 26. The plurality of connectors 26 place the partitioned circuit element 22 into communication with the main assembly board 12 when the partitioned circuit assembly 14 is inserted into the main assembly board 12 (page 3, par 16). The invention can further include a heat

sink element 36 formed as a portion of the partitioned circuit assembly 14 such that each partitioned circuit can supply its own cooling requirements (page 4, par 17). Passivation material 38 positioned within the partitioned circuit housing 24 to surround and protect the partitioned circuit element 22 (page 4, par 18). A seal element 30 can be utilized to seal the partitioned circuit assembly 14 to the main assembly housing 20 upon insertion of the partitioned circuit assembly 14 into the main assembly housing 20 (page 4, par 16). The use of main assembly ports (Figure 1) and communication ports 16 allow for sealed insertion of the partitioned circuit assembly 14 as well as the sealed attachment of communication devices such as cables.

There are two (2) independent claims. Claim 8 specifically recites a main assembly board 12, a main assembly housing 20, and a pre-assembled partition circuit assembly 14 including a partitioned circuit element 22 mounted within a partitioned circuit housing 24 and a plurality of connectors 26. Claim 8 further recites the limitation wherein the plurality of connectors 26 place the partitioned circuit element 22 into communication with the main assembly board 12 when the partitioned circuit assembly 14 is inserted into the main assembly board 12. Independent claim 15 recites limitations directed solely to the partitioned circuit assembly 14.

Figures 1-4 illustrate the automotive engine controller 10.

VI. Issues

The following issues are presented in this appeal, the issues correspond directly to the Examiner's final grounds for rejection in the Final Office Action:

- (1) Whether claims 8 and 13-15 are patentable under 35 USC 102(b) over Natsume (US 5,764,487).

(2) Whether claims 9-12 and 16-17 are patentable under 35 USC 103(a) over Natsume (US 5,764,487) in view of Denzene (US 6,219,258).

VII. Grouping of Claims

The rejected claims have been grouped together by the Examiner in both of the rejections.

VIII. Argument

Ground 1 rejections

The Applicant respectfully asserts that ground 1 as defined above 35 USC 102(b) over Natsume (US 5,764,487) is improper and should be overturned. The Examiner asserts that Natsume teaches an engine controller comprising a main assembly board 28, a main assembly housing 24,26, and a pre-assembled partitioned circuit assembly having a partitioned circuit element 16 mounted within a partitioned circuit housing 22 and a plurality of connectors 32. The Examiner further asserts that Natsume teaches at least one main assembly port 20 and that the partitioned circuit assembly can be inserted into this port through the main housing. The Applicant respectfully traverses these rejections, and requests reevaluation of these claims by the Board in light of the foregoing arguments.

The Applicant asserts most significantly that the wiring harnesses 12, relays 14 and fuses 16 (of the Natsume reference) are not partitioned circuit assemblies as claimed by the present invention. They are in fact electrical components used within a circuit assembly but are not circuit assemblies themselves. Although this assertion throughout prosecution is sufficient support within the prosecution history to both

support an allowance as well as adequately serve as a limitation, the Applicant respectfully calls the Board's attention to paragraph 15 of the present application. In it the Applicant has described partitioned circuits as adding functions to the main assembly 12. Thus circuits that perform functions are claimed, not mere components within a single circuit.

Additionally, the Applicant respectfully traverses the Examiner's assertion that an engine controller is taught by the Natsume reference. The Applicant respectfully calls the Board's attention to column 3 lines 32-34 of the Natsume reference. Natsume teaches a fuse panel located within the passenger compartment of a vehicle. This is not the engine controller claimed by the present invention. Engine controllers are well known elements within vehicle design and are commonly situated within the engine compartment and not the passenger compartment. The large temperature fluctuations and corrosive environment associated with the engine compartment are not shared by the passenger compartment. Henceforth, the common placement of removable components such as fuses within the passenger compartment would not teach an engine controller with removable partitioned circuits as claimed by the present invention. The Examiner has asserted that there exists no limitation limiting the claims to an automotive engine controller as asserted by the Petitioner. The Petitioner, however, calls the Board's attention to the prosecution history wherein the Petitioner has clearly and unambiguously limited the claim scope to an automotive engine controller (Response filed September 30, 2002; response March 3, 2003). The clear and unambiguous limitation of the scope of the claims in these response provides a clear limitation on the claim (Omega Engineering Inc, v. Raytek Corp. 334 F.3d

1314, 67 U.S.P.Q.2d 1321, Fed. Cir.(Conn.), Jul 07, 2003). The Applicant, therefore, requests the Board's reconsideration.

Ground 2 rejections

The Examiner has rejected claims 2, 5, 9, 12, and 16 under 35 USC 103(a) as being unpatentable over Natsume (US 5,764,487) in view of Denzene (US 6,219,258 B1). The Examiner acknowledges that Natsume does not teach a press-assembled partition further including a heat sink, the use of passivation material, or a seal element. The office action states, however, that it would be obvious to a person skilled in the art to adapt the pre-assembled circuit assembly of the Natsume reference to include a heat sink, passivation material, and a seal element. The office action further asserts "the applicant is merely attempting to remedy a common problem within the electronics industry, and thus not providing an improvement on an existing product". The Applicant respectfully seeks the Board's reconsideration on this rejection as well.

The applicant respectfully asserts that neither the Natsume nor the Denzene reference, either alone nor in combination, teaches an automotive engine controller with a partitioned circuit assembly. Furthermore, the Applicant asserts that the Denzene patent represents non-analogous art. The Denzene patent teaches a circuit assembly for use on outdoor telecommunications boxes. Although these boxes do experience environmental conditions, in general they do not come anywhere near the conditions experienced by an engine controller as claimed by the present invention. The present invention utilizes a partitioned circuit assembly to address an automotive engine controller used in a high vibrational, high temperature, and highly corrosive

environment. Similarly, as asserted, the Natsume reference teaches the use of a fuse panel within the passenger compartment of a vehicle. Not only are the components of Natsume not subjected to the environment of an engine compartment, they are not even circuit assemblies. Neither the Natsume patent nor the Denzene patent, either alone or in combination, address or teach such a structure and therefore are inappropriate to use as prior art.

The Examiner summarily dismissed the limitations of each partitioned circuit having its own heat sink as merely a multiplied effect of what is known in the art; the use of a seal as routine skill in the art; and the use of passivation material as taught by Denzene. The Applicant respectfully requests the Board's reconsideration. The Applicant would further like to note that the present application has not simply claimed a heat sink to cool an electronic apparatus as asserted by the examiner. The Applicant calls the Board's attention to the fact that the application has claimed an individual heat sink (see Claim 8) associated with each partitioned circuit portion of an engine controller. The Examiner's assertion that it would be obvious to "adapt the pre-assembled circuit assembly of the Natsume reference to include a heat sink, passivation material, and a seal element" is flawed. The components of Natsume are just that, (fuses, relays, etc). Their size and functions would make individualize heat sinks illogical. The present invention claims "circuit assemblies" which represent a collection of electronic components in the form of a circuit assembly. To individually heat sink partitioned circuits within the engine controller is significantly more than simply (heat sinking a component). Improper attention has been given to this novelty and patentably distinct limitations. Just as the knowledge of a resistor may be well

known in the electronics industry, its use in particular grouping or arrangement may still be patentably distinct and novel. Present engine controllers commonly utilize a single heat sink arrangement to cool their electronics. By utilizing independent cooling on the partitioned circuit portions of the engine controller, specific heat generating components can be specifically addressed while heat from such components can be isolated from the central controller (see paragraph 17, page 4). This provides a novel utility not associated with present engine controller designs. Furthermore, as previously mentioned, the Applicant asserts that insufficient reasoning has been provided to support an obviousness rejection. No structural comparison between prior art engine controller heat sink designs and those claimed by the present invention were asserted or discussed by the office action.

Furthermore, the use of a seal should not be isolated and dismissed so easily. It must be considered in light of the combination of limitations contained in the underlying independent claim. The use of individual partitioned circuit assemblies that can be plugged into the main circuit assembly of an automotive engine controller that seal into the main controller housing cannot and should not be dismissed as simply claiming the use of a seal. The cited art fails to teach these limitations as well. The seal element 110 disclosed by the Denzene patent does not, in fact, seal the partitioned assembly to the main assembly as claimed by the present invention. Instead, the Denzene patent teaches the use of a seal element 110 to seal the connectors only. Its usage is strictly to protect the electrical connections, not seal the partitioned assembly to the main assembly as claimed by the present invention. The Denzene patent uses a conformal coating (see col. 7, lines 8-10) to seal the partitioned

circuit, but do not attempt to seal the circuit to the main assembly. Furthermore, the Applicant notes that the thin layer approach to conformal coatings, as taught by Denzene and used in the industry, are commonly applied in thin layers that would not substantially reduce damage to the components due to vibration. The use of the passivation layer as taught by the present invention, however, provides a thick application helping the electronic components withstand vibration. The Applicant notes that an outdoor telecommunications box, commonly mounted stationary objects outdoors, is by nature not intended to be subjected to the vibrations experienced by any object mounted within inches of a six-cylinder engine rotating at 6000 rpm's while traveling over an imperfect blacktop surface at speeds of over fifty miles per hour.

Furthermore, the Applicant would like to explain that automotive engine controllers are commonly formed as single permanently assembled units. The units are assembled in this fashion to conserve space, lower cost, and insure proper sealing and protection from the environment. The components installed into automobiles are expected to run for thousands of miles in temperatures ranging from Arizona heat to Michigan snow while driving over potholes and curbs. Therefore, the concept of utilizing plug-in components for critical components positioned in the most hostile environment of the automobile is not intuitive as the critical nature of such components makes the loss of contact from such an element due to vibration unacceptable. The use of similar systems in low vibrational applications such as telecommunications or home computer usage, therefore, does not render the use in such a structure designed for such a drastically difference application and environment

obvious. It is one thing to contemplate plug in cables, wherein the flexibility and relatively low mass of the cable may have little impact, it is another to subject an entire partitioned circuit to such loading. Therefore, the Applicant asserts that the claimed engine controller is in a significantly different field and therefore patentably distinct.

The Applicant thereby requests the Board to review the Examiner's rejection of these claims. Therefore, because the references are believed to be not properly combinable to arrive at the limitations of the present invention, Applicant respectfully requests the Board to reverse the Examiner's rejections.

IX. Appendix

A copy of each of the claims involved in this appeal, namely claims 8-17, is attached hereto as Appendix A.

X. Conclusion

For the reasons advanced above, Applicant respectfully contends that each claim is patentable. Therefore, reversal of all rejections is requested.

ARTZ & ARTZ PC

By: 

Thomas E. Donohue
Registration No. 44,660
28333 Telegraph Road, Suite 250
Southfield, MI 48034
(248) 223-9500

Dated: February 4, 2004

APPENDIX A

- 1-7. (Cancelled)
8. An engine controller comprising:
a main assembly board;
a main assembly housing; and
a pre-assembled partition circuit assembly having a partitioned circuit element mounted within a partitioned circuit housing and a plurality of connectors, said plurality of connectors placing said partitioned circuit element in communication with said main assembly board when said partitioned circuit assembly is inserted into said main assembly board.
9. An engine controller as described in claim 8 wherein said partitioned circuit assembly further includes a heat sink element.
10. An engine controller as described in claim 8 wherein said partitioned circuit assembly further includes passivation material positioned within said partitioned circuit housing.
11. An engine controller as described in claim 8 wherein said partitioned circuit assembly further includes a seal element such that said partitioned circuit assembly becomes sealed to said main assembly housing after said partitioned circuit assembly is inserted into said main assembly board.
12. An engine controller as described in claim 8 wherein said partitioned circuit assembly further includes a heat sink element, said partitioned circuit element mounted to said heat sink element using thermally conductive material.

13. An engine controller as described in claim 8 wherein said main assembly housing includes at least one main assembly port, said at least one main assembly port allowing said partitioned circuit assembly to be inserted into said main assembly board through main assembly housing.

14. An engine controller as described in claim 8 further comprising at least one communication port therein.

15. A partitioned circuit assembly for integration into an engine controller comprising:

- a partitioned circuit element;
- a partitioned circuit housing surrounding said partitioned circuit element; and
- a plurality of connectors.

16. A partitioned circuit assembly as described in claim 15 wherein said partitioned circuit housing includes a heat sink portion, said partitioned circuit element being mounted to said heat sink portion using a thermal connective adhesive.

17. A partitioned circuit assembly as described in claim 15 wherein the partitioned circuit assembly may be removably mounted to the engine controller.



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Signature

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sink element 36 formed as a portion of the partitioned circuit assembly 14 such that each partitioned circuit can supply its own cooling requirements (page 4, par 17). Passivation material 38 positioned within the partitioned circuit housing 24 to surround and protect the partitioned circuit element 22 (page 4, par 18). A seal element 30 can be utilized to seal the partitioned circuit assembly 14 to the main assembly housing 20 upon insertion of the partitioned circuit assembly 14 into the main assembly housing 20 (page 4, par 16). The use of main assembly ports (Figure 1) and communication ports 16 allow for sealed insertion of the partitioned circuit assembly 14 as well as the sealed attachment of communication devices such as cables.

There are two (2) independent claims. Claim 8 specifically recites a main assembly board 12, a main assembly housing 20, and a pre-assembled partition circuit assembly 14 including a partitioned circuit element 22 mounted within a partitioned circuit housing 24 and a plurality of connectors 26. Claim 8 further recites the limitation wherein the plurality of connectors 26 place the partitioned circuit element 22 into communication with the main assembly board 12 when the partitioned circuit assembly 14 is inserted into the main assembly board 12. Independent claim 15 recites limitations directed solely to the partitioned circuit assembly 14.

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environment. Similarly, as asserted, the Natsume reference teaches the use of a fuse panel within the passenger compartment of a vehicle. Not only are the components of Natsume not subjected to the environment of an engine compartment, they are not even circuit assemblies. Neither the Natsume patent nor the Denzene patent, either alone or in combination, address or teach such a structure and therefore are inappropriate to use as prior art.

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circuit, but do not attempt to seal the circuit to the main assembly. Furthermore, the Applicant notes that the thin layer approach to conformal coatings, as taught by Denzene and used in the industry, are commonly applied in thin layers that would not substantially reduce damage to the components due to vibration. The use of the passivation layer as taught by the present invention, however, provides a thick application helping the electronic components withstand vibration. The Applicant notes that an outdoor telecommunications box, commonly mounted stationary objects outdoors, is by nature not intended to be subjected to the vibrations experienced by any object mounted within inches of a six-cylinder engine rotating at 6000 rpm's while traveling over an imperfect blacktop surface at speeds of over fifty miles per hour.

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obvious. It is one thing to contemplate plug in cables, wherein the flexibility and relatively low mass of the cable may have little impact, it is another to subject an entire partitioned circuit to such loading. Therefore, the Applicant asserts that the claimed engine controller is in a significantly different field and therefore patentably distinct.

The Applicant thereby requests the Board to review the Examiner's rejection of these claims. Therefore, because the references are believed to be not properly combinable to arrive at the limitations of the present invention, Applicant respectfully requests the Board to reverse the Examiner's rejections.

IX. Appendix

A copy of each of the claims involved in this appeal, namely claims 8-17, is attached hereto as Appendix A.

X. Conclusion

For the reasons advanced above, Applicant respectfully contends that each claim is patentable. Therefore, reversal of all rejections is requested.

ARTZ & ARTZ PC

By: 

Thomas E. Donohue
Registration No. 44,660
28333 Telegraph Road, Suite 250
Southfield, MI 48034
(248) 223-9500

Dated: February 4, 2004

APPENDIX A

- 1-7. (Cancelled)
8. An engine controller comprising:
 - a main assembly board;
 - a main assembly housing; and
 - a pre-assembled partition circuit assembly having a partitioned circuit element mounted within a partitioned circuit housing and a plurality of connectors, said plurality of connectors placing said partitioned circuit element in communication with said main assembly board when said partitioned circuit assembly is inserted into said main assembly board.
9. An engine controller as described in claim 8 wherein said partitioned circuit assembly further includes a heat sink element.
10. An engine controller as described in claim 8 wherein said partitioned circuit assembly further includes passivation material positioned within said partitioned circuit housing.
11. An engine controller as described in claim 8 wherein said partitioned circuit assembly further includes a seal element such that said partitioned circuit assembly becomes sealed to said main assembly housing after said partitioned circuit assembly is inserted into said main assembly board.
12. An engine controller as described in claim 8 wherein said partitioned circuit assembly further includes a heat sink element, said partitioned circuit element mounted to said heat sink element using thermally conductive material.

13. An engine controller as described in claim 8 wherein said main assembly housing includes at least one main assembly port, said at least one main assembly port allowing said partitioned circuit assembly to be inserted into said main assembly board through main assembly housing.

14. An engine controller as described in claim 8 further comprising at least one communication port therein.

15. A partitioned circuit assembly for integration into an engine controller comprising:

- a partitioned circuit element;
- a partitioned circuit housing surrounding said partitioned circuit element; and
- a plurality of connectors.

16. A partitioned circuit assembly as described in claim 15 wherein said partitioned circuit housing includes a heat sink portion, said partitioned circuit element being mounted to said heat sink portion using a thermal connective adhesive.

17. A partitioned circuit assembly as described in claim 15 wherein the partitioned circuit assembly may be removably mounted to the engine controller.



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FEE TRANSMITTAL for FY 2004

Effective 10/01/2003. Patent fees are subject to annual revision.

☐ Applicant claims small entity status. See 37 CFR 1.27

TOTAL AMOUNT OF PAYMENT (\$) 330.00

Complete if Known

Application Number	09/928,884
Filing Date	August 14, 2001
First Named Inventor	Daniel A. Lawlyes
Examiner Name	
Art Unit	
Attorney Docket No.	DEL 0192 PA

METHOD OF PAYMENT (check all that apply)

☐ Check ☐ Credit card ☐ Money Order ☐ Other ☐ None

☒ Deposit Account:

Deposit
Account
Number
Deposit
Account
Name

50-0476

John A. Artz, P.C.

The Director is authorized to: (check all that apply)

☒ Charge fee(s) indicated below ☒ Credit any overpayments

☒ Charge any additional fee(s) or any underpayment of fee(s)

☐ Charge fee(s) indicated below, except for the filing fee to the above-identified deposit account.

FEE CALCULATION

1. BASIC FILING FEE

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1001 770	2001 385	Utility filing fee	
1002 340	2002 170	Design filing fee	
1003 530	2003 265	Plant filing fee	
1004 770	2004 385	Reissue filing fee	
1005 160	2005 80	Provisional filing fee	

SUBTOTAL (1) (\$)

2. EXTRA CLAIM FEES FOR UTILITY AND REISSUE

	Extra Claims	Fee from below	Fee Paid
Total Claims	-20** =	X	
Independent Claims	-3** =	X	
Multiple Dependent			

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description
1202 18	2202 9	Claims in excess of 20
1201 86	2201 43	Independent claims in excess of 3
1203 290	2203 145	Multiple dependent claim, if not paid
1204 86	2204 43	** Reissue independent claims over original patent
1205 18	2205 9	** Reissue claims in excess of 20 and over original patent

SUBTOTAL (2) (\$)

**or number previously paid, if greater; For Reissues, see above

FEE CALCULATION (continued)

3. ADDITIONAL FEES

Large Entity Fee Code (\$)	Small Entity Fee Code (\$)	Fee Description	Fee Paid
1051 130	2051 65	Surcharge - late filing fee or oath	
1052 50	2052 25	Surcharge - late provisional filing fee or cover sheet	
1053 130	1053 130	Non-English specification	
1812 2,520	1812 2,520	For filing a request for ex parte reexamination	
1804 920*	1804 920*	Requesting publication of SIR prior to Examiner action	
1805 1,840*	1805 1,840*	Requesting publication of SIR after Examiner action	
1251 110	2251 55	Extension for reply within first month	
1252 420	2252 210	Extension for reply within second month	
1253 950	2253 475	Extension for reply within third month	
1254 1,480	2254 740	Extension for reply within fourth month	
1255 2,010	2255 1,005	Extension for reply within fifth month	
1401 330	2401 165	Notice of Appeal	
1402 330	2402 165	Filing a brief in support of an appeal	
1403 290	2403 145	Request for oral hearing	
1451 1,510	1451 1,510	Petition to institute a public use proceeding	
1452 110	2452 55	Petition to revive - unavoidable	
1453 1,330	2453 665	Petition to revive - unintentional	
1501 1,330	2501 665	Utility issue fee (or reissue)	
1502 480	2502 240	Design issue fee	
1503 640	2503 320	Plant issue fee	
1460 130	1460 130	Petitions to the Commissioner	
1807 50	1807 50	Processing fee under 37 CFR 1.17(q)	
1806 180	1806 180	Submission of Information Disclosure Stmt	
8021 40	8021 40	Recording each patent assignment per property (times number of properties)	
1809 770	2809 385	Filing a submission after final rejection (37 CFR 1.129(a))	
1810 770	2810 385	For each additional invention to be examined (37 CFR 1.129(b))	
1801 770	2801 385	Request for Continued Examination (RCE)	
1802 900	1802 900	Request for expedited examination of a design application	

Other fee (specify)

*Reduced by Basic Filing Fee Paid

SUBTOTAL (3) (\$)

SUBMITTED BY

(Complete if applicable)

Name (Print/Type)	Thomas E. Donohue	Registration No. (Attorney/Agent)	44,660	Telephone	248-223-9500
Signature		Date	2-4-2004		

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